Rapport de mission en Allemagne

Conférence Internationale de Brême

Comités ICCTM de l'ITMF

Treizième réunion du CSITC

Projet CFC/ICAC/33

Du 21 au 27 mars 2010

Jean-Paul GOURLOT, Laura PAYET

CIRAD- UPR102-LTC Montpellier

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Projet CFC/ICAC/33
Du 21 au 27 mars 2010

1 - Calendrier

- Lundi 22 mars :
  - Montpellier – Paris CDG – Brême ;
  - Réunion préparatoire des coordinateurs de l'*International Cotton Committee (ICCTM) for the Testing Method* de l'*International Textile Manufacturers Federation* (ITMF) ;
  - Réunion préparatoire du groupe *Commercial Standardization of Instrument Testing on Cotton* (CSITC) de l'*International Cotton Advisory Committee* (ICAC)
  - Diner avec ICCTM, ITMF et le *Steering Committee* de l'ICCTM
- Mardi 23 et mercredi 24 mars :
  - Réunions des groupes de travail de l'ICCTM
  - Treizième réunion du groupe CSITC
- Jeudi 25 et vendredi 26 mars : 30° Conférence Internationale de Brême
- Samedi 27 mars :
  - Discussions sur Projet CFC/ICAC/33
  - Visite de la Bourse de Brême
  - Visite du site du Faserinstitut de Brême (FIBRE) au sein de l'Université de Brême avec Sven Torstrick, responsable du laboratoire
  - Brême – Paris CDG – Domiciles

2 - Financement de la mission

La mission de Laura PAYET a été financée par l'activité A.5.1 du projet CFC/ICAC/33.

La mission de Jean-Paul GOURLOT a été financée sur les fonds du Correspondant filière avec pour but d'approfondir les contacts institutionnels entre les partenaires historiques rencontrés et le CIRAD.

3 - Objectifs de la mission

Réaliser les activités :

- Prendre des contacts avec nos partenaires institutionnels historiques
- Assurer la coordination du groupe de travail 'Stickiness' de l'ICCTM
- Présenter des communications dans les groupes de travail de l'ICCTM
- Assurer la participation à la 13° réunion du CSITC
- Participer à la 30° Conférence Internationale de Brême
- Nous concerter avec FIBRE pour ce qui concerne les activités du projet CFC/ICAC/33

4 - Contacts institutionnels

4.1 - Avec l'ICAC

Outre les activités liées au projet CFC/ICAC/33, les discussions ont porté sur la participation du CIRAD à l'organisation de la 5° conférence cotonnière internationale (*World Cotton Research Conference*) qui aura lieu en Inde (probablement à Mumbai). Les quatre précédentes conférences ont eu lieu respectivement en Australie, en Grèce, en Afrique du Sud et aux Etats-Unis d'Amérique. L'ICAC souhaite vivement notre participation à l'organisation de cette conférence, sachant que la contribution financière du CIRAD n'est pas une nécessité profonde. L'ICAC préfèrerait que notre participation soit forte dans le comité d'organisation et dans l'accompagnement scientifique de cette conférence.

4.2 - Avec l'ITMF

Les relations sont toujours bonnes, et la coordination du groupe collage a été reconduite pour Jean-Paul GOURLOT.

En marge des groupes, Mona QAUD (RIETER) va nous demander des analyses du potentiel collant des échantillons qu'elle étudie.

4.3 - Avec le Common Fund for Commodities

M. Sietse van der Werff a demandé à ce qu'un document de quelques pages soit préparé par le CIRAD et la *Sudan Cotton Company* pour relater les progrès effectués dans le domaine de la contamination par le collage des fibres de coton. Un point particulier de ce document doit aborder la situation actuelle en lien avec les résultats du projet CFC/ICAC/11 où le CIRAD était coordinateur scientifique des activités.

4.4 - Avec la Sudan Cotton Company (SCC)

Outre le point précédent, la SCC nous demande de participer à l'interprétation des données de collage collectées depuis la fin du projet CFC/ICAC/11. Cela pourra alimenter le point précédent et le comité ITMF si nous recevons l'assentiment de la SCC pour le faire.

5 - Groupes de travail ICCTM de l'ITMF

Voir le programme en Annexe 1.

Laura PAYET a présenté les résultats des expérimentations de validation des ouvreurs-mélangeurs de fibres créés dans le cadre du projet CFC/ICAC/33 à destination des Centres Techniques Régionaux du Mali et de Tanzanie (Annexe 2).

Suite à cette présentation, une question de l'audience a permis de prévoir une programmation d'activités scientifiques en filature au CIRAD pour répondre aux questions suivantes :

- Peut-on prévoir la qualité des fils réalisés avec un mélange de fibres de coton de différentes origines à différents pourcentages à partir de leurs caractéristiques technologiques propres ? (à comparer avec EFS Engineered Fiber System software de Cotton Incorporated ??)
- Peut-on utiliser l'ouvreur-mélangeur pour réaliser des matières de référence pour les mesures de collage ?
- Peut-on prévoir les qualités de fils créés à partir de récoltes fractionnées de plants de cotons ?

Ces trois études ont été présentées en interne Equipe 3 aux personnes concernées. Il est nécessaire de définir dans les détails les attendus de ces expérimentations, de les programmer,

de les réaliser en cohérence avec les autres activités du LTC, et enfin de prévoir un plan de communication (publications, communications …). Nous proposons d'utiliser la prochaine tenue des groupes de travail de l'ICCTM-ITMF en mars 2012 comme lieu de communication prioritaire.

> Note : cela va dans le sens des recommandations émises par la commission d'évaluation AERES dans son rapport préliminaire de fin mars 2010.

Dans son introduction d'ouverture du groupe, JPG a annoncé clairement que le nombre de personnes travaillant à ce sujet diminue chaque année et qu'il pourra être difficile de présenter des résultats dans deux ans (annexe 3).

En résumé des présentations et discussions, JPG a présenté les conclusions suivantes :

ITMF – ICCTM - Stickiness Task Force report

The stickiness session started with an introduction stating the challenges of the cotton textile industry: the goal is to remain competitive with synthetic fibers. Thus, solutions are implemented to maintain an acceptable level of profitability in the production by the reduction of production costs as well as of processing costs.

But, as far as stickiness is concerned, this contamination in fibers induces at least a loss in quality up to disruptions during spinning and further processing steps; this is going the wrong direction as higher processing costs are observed in this situation at the same time yarn as quality may be altered. To overcome this problem, additional processing steps are sometimes used – further increasing processing costs – and/or discounts in raw prices materials are demanded in compensation. The vicious circle is then started to give a bad reputation to this cotton origin, inducing further automatic discounting on the raw material.

All the cotton stakeholders – producers, ginners, traders, spinners as well as researcher have to work jointly to solve this problem.

As a reminder, stickiness originates from various sources: vegetal parts, oil traces, waxes, plant sugars and insect sugars. The most important and problematic cause of stickiness is due to the entomological sugars from insects.

Insect honeydew has become an important contaminant present in cotton. As said earlier, stickiness induces production and quality losses as sticky points remain in the material from fibers in the field to the textiles processes. We know that the behavior of contaminated fibers during processing is highly dependent upon the quantity and the type of the main sugars present in fibers.

Various techniques may be used to estimate a possible contamination of fibers by honeydew. These techniques are more or less predictive of the stickiness potential of the fibers during their processing. These techniques may be categorized in four categories: chemical methods for measuring sugar contents, physical, mechanical and thermo-mechanical techniques (mostly measuring stickiness contamination).

A bibliography on stickiness has been updated so that anyone can learn from the researches made on the topic since the 1960's to nowadays where we can observe a decrease in the number of publications in the recent years.

The Dr. Eric Gozé, CIRAD, presented a document on the way to use data obtained in case of counts of items such as number of neps, number of sticky points etc. He stated that the observation of repeatability of theses counts shows that standard deviations and CVs are not fixed quantities; rather they are function of the mean. These apparently complex functions can be all derived from simpler functions and models exist according to known typical

distribution of the results to better explore the collected data. He then proposed not to use CV as a single figure for the diagnostic of precision of measurements based on counts (neps, trash, seed cot fragments, sticky points …).

The coordinator then presented a document on behalf of Dr. AMARA and HARZALLAH, LPMT –ENSISA. The study was designed to measure the adhesion properties of individual sugars like sucrose, fructose and glucose or / and combination of sugars in order to mimic the most problematic insect sugars onto steel support as we can find in the textile industry. Results of the so-called Tack-test shows that the adherence of honeydew decreases with water content, increases with speed of separation and is affected the most by surface characteristics and the type of sugar, alone or in a mix.

As additional information, we learn that:

- *SYDEL, Montpellier France is manufacturing the SCT and H2SD,*
- *That SYDEL is currently working at a newer version of H2SD to reduce its cost both in terms of investment and processing costs,*
- *The KOTITI, who presented a method 2 years ago, has prepared an ISO standard currently under national votes.*

Future actions of the group:

- *Study the means of proper conservation of reference materials such as stickiness reference materials,*
- *Study the possibility of calibrating stickiness testers,*
- *On demand from the Steering Committee, recognize the existing instruments,*
- *Try to link together the information provided by stickiness testers, the Tack method and the spinning test to insure a proper prediction of the observed phenomenon during spinning from the measuring methods.*

La prochaine « réunion » est prévue par vidéo conférence en alternance tous les 2 ans pour des échanges d'informations plus réguliers entre coordinateurs.

La prochaine réunion des groupes de travail dans leur ensemble se tiendra en mars 2012 à Brême.

6 - Treizième réunion du CSITC

Voir le programme en Annexe 4.

Le rapport intégré dans le rapport officiel est le suivant :

The CFC/ICAC/33 project, funded by the CFC and the EU contains 4 main components (see www.csitc.org or www.icac.org).

Components A and B help in organizing a worldwide harmonization tool for insuring instrument reliability and recognition, for instance via the organization of the CSITC international round test, already presented today by Axel Drieling.

Component C is focused on bringing new knowledge in Africa by the creation of two Regional Technical Centers (RTC): one in West Africa (Ségou, Mali) and one in East and Southern Africa (Dar es Salaam, Tanzania). Both RTC have been providing a new facility building while the Project brought equipments and instruments. Both RTC are ready to be inaugurated in the coming months. Those RTC provide training session for all cotton stakeholders (at least

three training per year) as well as tours of expertise in laboratories in the surrounding regions (three per year). They also organize regional round tests using regional cottons on the model of the CSITC international round test (four times per year). The RTC also provide re-tests on already tested cottons to insure a day-to-day quality in the commercial and instrumental results used for classing purposes.

Component D intends to bring technical hints for installing new laboratories and/or improving existing ones. Thus, basic drawings of efficient air management systems and/or of safe electric installation have been developed. Developments is currently made on several topics as designing a device to mix cotton fibers in order to feed the regional round tests (presentation in the ITMF-ICCTM working group sessions) and two copies were made for the RTC. Two "variability studies" are ongoing in both RTC in order to quantify the level of variability of the cotton fibers characteristics within cotton bales. The output of these studies will be the design of operating method(s) to be used by classing laboratories for insuring reliable instrumental results by instrument testing.

The mid-term evaluation of the project is planned in the coming months and a call of experts is currently under progress for running this activity.

7 - Trentième Conférence Internationale de Brême

Voir le programme en Annexe 5. Le vaste programme des présentations permet d'avoir une vue globale du monde cotonnier et de ses évolutions. JPG a été coordinateur d'une session (Qualité).

8 - Concertation pour le Projet CSITC

Les discussions avec FIBRE, ICAC, et CFC ont permis d'avancer sur un certain nombre de questions en suspend jusqu'alors :

- Laura PAYET a pu former deux personnes à l'utilisation de la machine à homogénéiser et mélanger les cotons dans les locaux de la bourse du coton de Brême. Cette machine est restée en exposition toute la semaine et lors des portes ouvertes du laboratoire.
- L'inauguration du RTC East sera effective les 8 et 9 avril 2010 ;
- L'inauguration du RTC West, initialement prévue aux mêmes dates, est repoussée à une date ultérieure faute de participants. Une nouvelle information est envoyée aux partenaires de la région pour fixer une meilleure date.
- Le dossier d'importation de la machine à homogénéiser et mélanger les fibres de coton pour le RTC East a pu être avancé grâce aux informations collectées la semaine suivant cette mission.

Annexe 1 : Groupes de travail de l’ICCTM-ITMF

Final update II - Dec 2/3/2010

INTERNATIONAL TEXTILE MANUFACTURERS FEDERATION
FEDERATION INTERNATIONALE DES INDUSTRIES TEXTILES
INTERNATIONALE VEREINIGUNG DER TEXTILINDUSTRIE

International Committee on Cotton Testing Methods

Agenda

Plenary & Task Force Meetings

March 23rd and 24th, 2010
Bremen Cotton Exchange, 4th Floor (room: "Sitzungssaal")
Wachtstrasse 17-24, 28195 Bremen, Germany

1. **Opening Plenary Meeting**
   Tuesday, March 23rd, 2010 (09.00-10.30)
   - 1.1 Welcome by the ITMF Director General, Mr. Christian Schindler 5'
   - 1.2 Opening of the Meeting by the Chairman, Mr. Vijay Shankar 5'
   - 1.3 Approval of Agenda 2'
   - 1.4 Proceedings of the 2008 Bremen Meeting and Matters arising there from + demo website
   - 1.5 Committee Membership
   - 1.6 Report on the Meeting of the Steering Committee, Washington 2009, Mr. Terry Townsend
   - 1.7 Input from other Committees / Boards
   - 1.8 ICCTM mandates
   - 1.9 ICCTM Instrument Recognition
   - 1.10 Topics not Related to Individual Task Forces bis 30

2. **Consecutive Meetings of the Individual Task Forces**
   Tuesday, March 23rd, 2010 (10:30-12:00 and 14:00-17:30) and
   Wednesday, March 24th, 2010 (08:30-12:30)
   - HVI (Mona Qaud)
   - Length (Axel Drieling)
   - Colour (Malgorzata Matusiak)
   - Neps / Trash (Jonn Foulk)
   - Fineness / Maturity (Stuart Gordon on behalf of Devron Thibodeaux)
   - Stickiness (Jean-Paul Gourlot)

3. **Closing Plenary Meeting**
   Wednesday, March 24th, 2010 (13.00-14.30)
   - 3.1 Summary of Task Force Activities
   - 3.2 Discussion on Format and Work of Task Forces and Election of their Coordinators
   - 3.3 Election of Chairmen
   - 3.4 Election of Steering Committee
   - 3.5 Financial Sources for Task Force Activities
   - 3.6 Collection of Topics for 2012
   - 3.7 Discussion on a Meeting or Video-conference in 2011
   - 3.8 Invitation to the ICAC-CSITC-Meeting in the Afternoon
   - 3.9 Closing Remarks by the Chairman

Annexe 2 : Présentation des résultats de l’ouvreur-mélangeur de fibres

Variability results of homogenized cottons by a new laboratory homogenizing machine

Payet L., Gourlot J.- P., Azuara C.

ITMF, Bremen, March 2010

This project is co-funded by the European Union and the Common Fund for Commodities

Plan of presentation

- Introduction
- Homogenizing machine description
- Effect of machine on mixed cottons
- Effect of machine on homogenized cotton
- Conclusion

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Plan of presentation

Cotton Testing in Africa CSITC - Project

- **Introduction**
- Homogenizing machine description
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Introduction

Cotton Testing in Africa CSITC - Project

- Scope of the study
  - Prepare cottons for round tests
  - Several cottons covering a range of characteristics are tested
  - Goal: Compare every lab result to the labs mean result
    - ➔ **Avoid raw material variability impact on laboratory results**

This project is co-funded by the European Union and the Common Fund for Commodities

Introduction

- For any participating cotton
  - proper reading level within a chosen range for the required characteristics (many samples, many repetitions)
  - low variability
    - If good level, and low variability ➔ cotton selected
    - If not, according to given thresholds
      - Cotton rejected
      - **Cotton could be homogenized**
- CFC/ICAC/33 project, Regional round tests in Africa

This project is co-funded by the European Union and the Common Fund for Commodities

Introduction

- The homogenizing machine should ensure
  - a gentle processing (mean unchanged)
  - a decrease in within-cotton variability
  - an easy processing
  - an easy sampling of cotton fibre masses to be sent to every participating lab

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Plan of presentation

Cotton Testing in Africa CSITC - Project

- Introduction
- **Homogenizing machine description**
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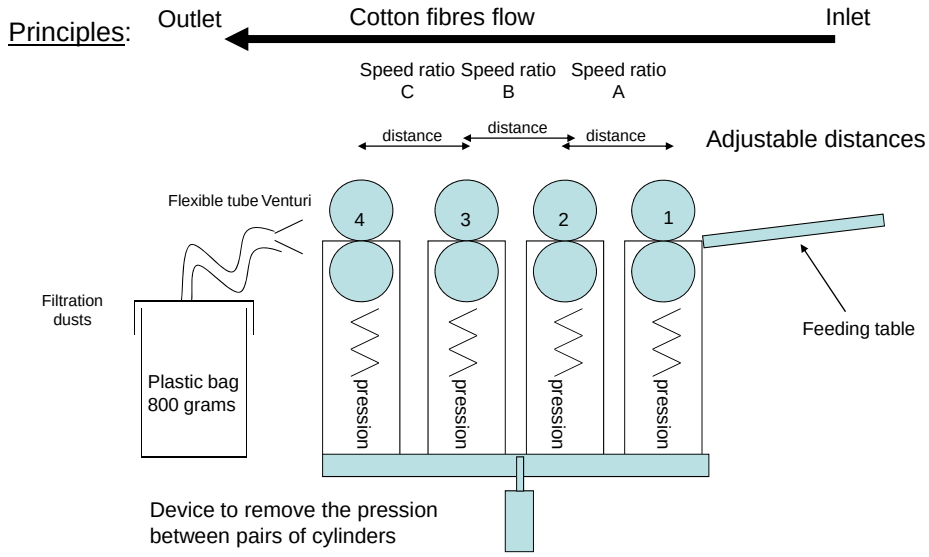
The homogenizing machine

Cotton Testing in Africa CSITC - Project



This project is co-funded by the European Union and the Common Fund for Commodities

The homogenizing machine

Picture:

This project is co-funded by the European Union and the Common Fund for Commodities

Plan of presentation

- Introduction
- Homogenizing machine description
- **Effect of machine on mixed cottons**
- Effect of machine on homogenized cotton
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This project is co-funded by the European Union and the Common Fund for Commodities

Mixing cottons with the machine

- Objective
  - Mix 2 types of cottons
  - Observe a difference of variability between “raw” and mixed samples

H0: homogenizing machine reduces the variability of two cottons chosen to be drastically different on their length and strength properties when mixed together

Exp. 1 small samples (40 g) → 1A: mixing
→ 1B: mixing+“doubling”

Exp. 2 larger masses (4 kg) → 2A: mixing
→ 2B: mixing+“doubling”

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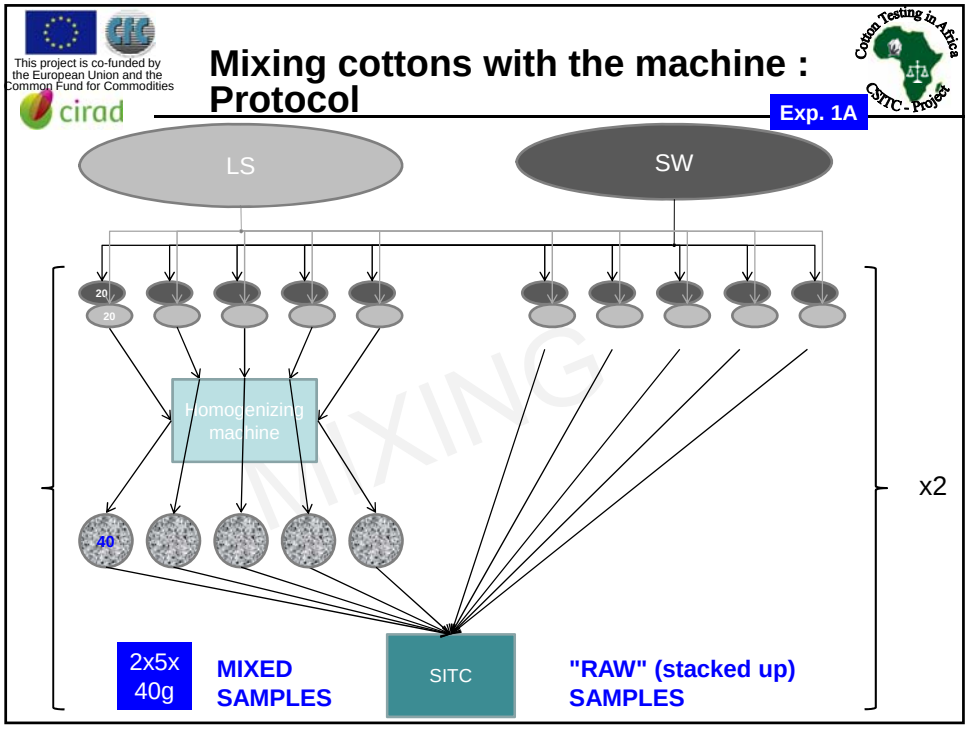
Mixing cottons with the machine

- Materials
  - Cottons: LS and SW stacked up on the feeding table
  - Homogenizing machine:
    - » Speed ratios fixed
    - » Distances between pairs of cylinders
    - » Pressure between cylinders
    - » Pressure drop in venturi
  - SITC testing:
    - HVI 1000 M700
    - 2 Mic, 6 LS, 6 CT on 40g or 200g samples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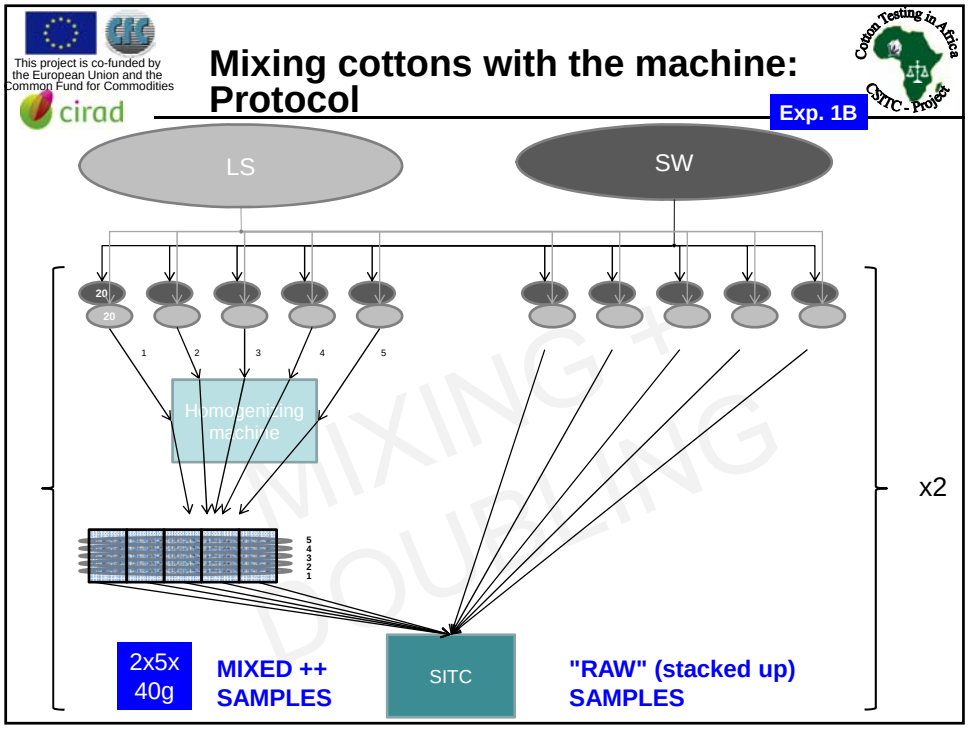
Mixing cottons with the machine : Protocol
Exp. 1A
Cotton Testing in Africa
CSITC - Project
LS
SW
20
20
Homogenizing machine
40
x2
2x5x 40g
MIXED SAMPLES
SITC
"RAW" (stacked up) SAMPLES
MIXING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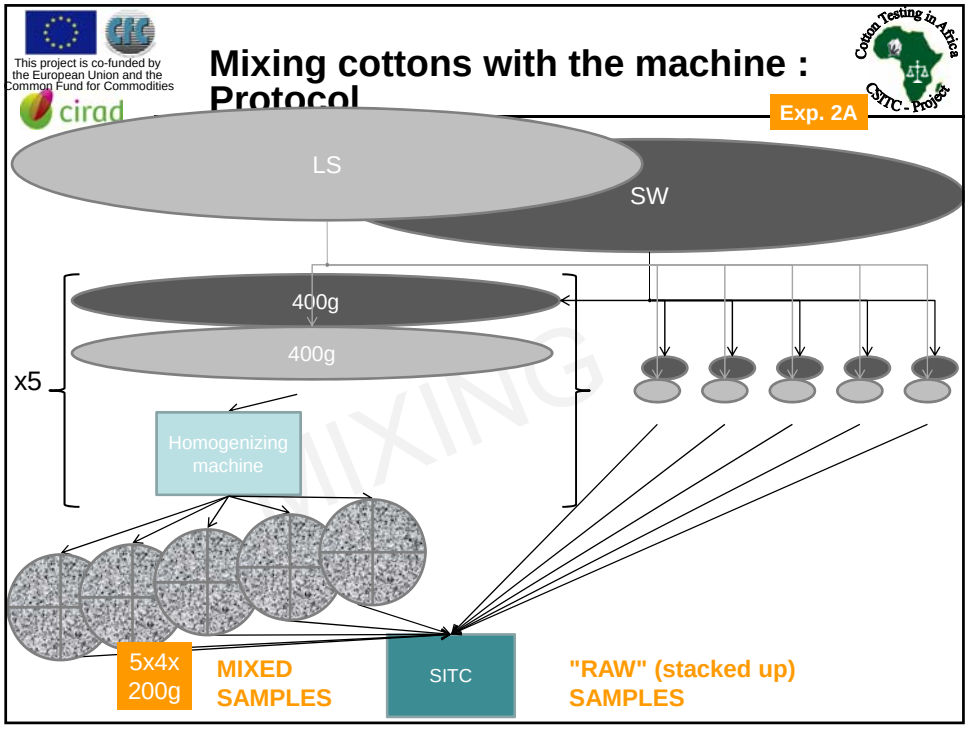
Mixing cottons with the machine: Protocol
Exp. 1B
Cotton Testing in Africa
CSITC - Project
LS
SW
20
20
1
2
3
4
5
Homogenizing machine
5
4
3
2
1
x2
2x5x 40g
MIXED ++ SAMPLES
SITC
"RAW" (stacked up) SAMPLES
MIXING + DOUBLING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Mixing cottons with the machine : Protocol
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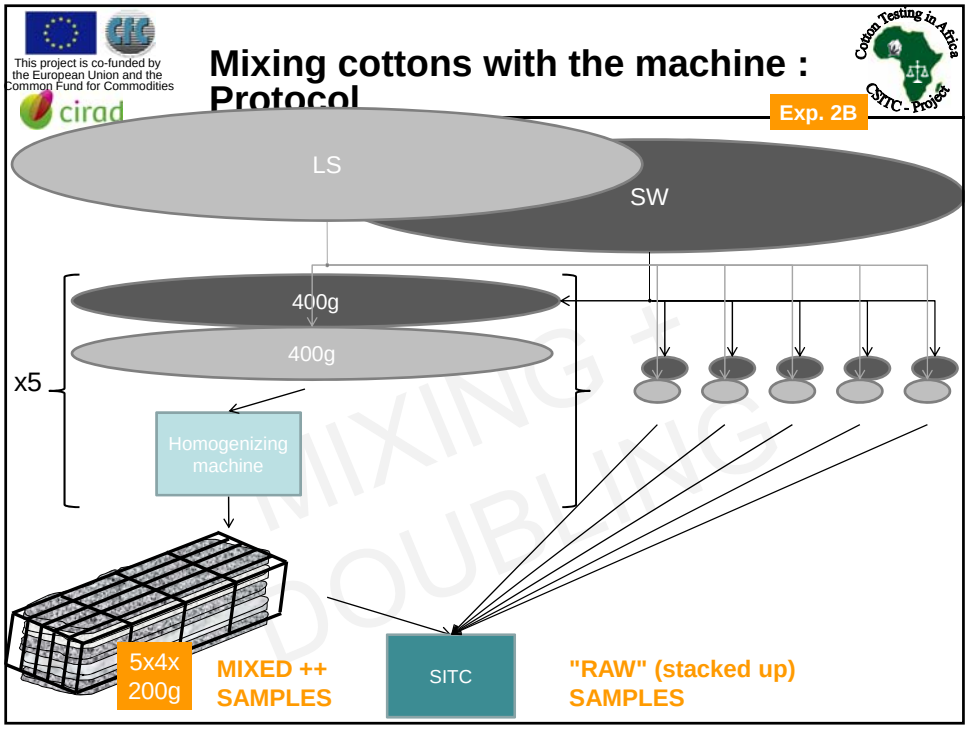
CSITC - Project
LS
SW
400g
400g
x5
Homogenizing machine
MIXING
5x4x 200g
MIXED SAMPLES
SITC
"RAW" (stacked up) SAMPLES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MIXING + DOUBLING
5x4x 200g
MIXED ++ SAMPLES
SITC
"RAW" (stacked up) SAMPLES

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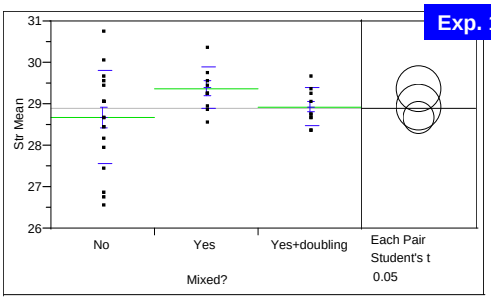
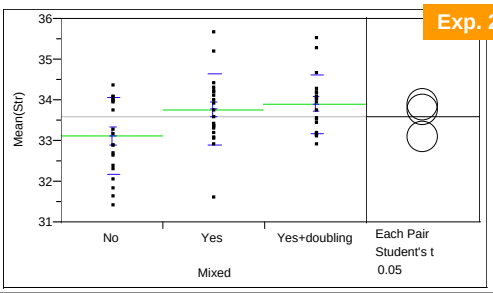
Effect of machine on within-cotton variability: results

- Results
  - Example: strength

Exp. 1



Exp. 2



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Effect of machine on within-cotton variability: results

Mix small samples (40 g)

Exp. 1

F-ratio: raw:mixed
if > 1 → variability tend to decrease
the higher, the more effect of mixing

1A: mixing

Parameter	Mean		Variance		F ratio	Pr>F	Trend to
	Raw	M	Raw	M			
Mic	4.32	4.28	0.00221	0.00042	4.9	0.01	decrease significantly
UHML mm	27.97	28.31	0.20347	0.05514	3.5	0.03	decrease significantly
UI %	80.94	80.63	0.37292	0.14678	2.4	0.09	decrease
Str gf/tex	28.68	29.37	1.21747	0.25344	4.6	0.01	decrease significantly
Rd	77.33	77.51	0.05671	0.04767	1.1	0.45	decrease
+b	13.25	13.34	0.01842	0.00489	3.6	0.03	decrease significantly
	Raw	M+D	Raw	M+D			
Mic	4.32	4.27	0.00221	0.00049	4.3	0.02	decrease significantly
UHML mm	27.97	28.15	0.20347	0.01672	11.5	0.00	decrease significantly
UI %	80.94	80.36	0.37292	0.03378	10.5	0.00	decrease significantly
Str gf/tex	28.68	28.93	1.21747	0.18678	6.2	0.00	decrease significantly
Rd	77.33	77.67	0.05671	0.03122	1.7	0.20	decrease
+b	13.25	13.31	0.01842	0.00544	3.2	0.04	decrease significantly

1B: mixing and doubling

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Effect of machine on within-cotton variability: results

Cotton Testing in Africa CSITC - Project

Mix larger samples (4 kg)

Exp. 2

F-ratio: raw:mixed *(inverted when in italic)*
if > 1 → variability tend to decrease *(to increase when in italic)*
the higher, the more effect of mixing

2A: mixing

Parameter	Mean		Variance		F ratio	Pr>F	Trend to
	Raw	M	Raw	M			
Mic	4.31	4.31	0.00234	0.00157	1.5	0.20	decrease
UHML mm	29.70	29.57	0.20706	0.18532	1.1	0.41	decrease
UI %	82.04	81.39	0.33311	0.74054	*2.2*	*0.04*	*increase*
Str gf/tex	33.11	33.78	0.86485	0.75136	1.2	0.38	decrease
Rd	79.39	79.68	0.04133	0.08167	*2.0*	*0.07*	*increase*
+b	11.54	11.52	0.05980	0.04802	1.2	0.32	decrease
	Raw	M+D	Raw	M+D			
Mic	4.31	4.30	0.00234	0.00123	1.9	0.09	decrease
UHML mm	29.70	29.52	0.20706	0.08164	2.5	0.02	decrease significantly
UI %	82.04	81.38	0.33311	0.17115	1.9	0.08	decrease
Str gf/tex	33.11	33.90	0.86485	0.50780	1.7	0.13	decrease
Rd	79.39	79.68	0.04133	0.01154	3.6	0.00	decrease significantly
+b	11.54	11.49	0.05980	0.01127	5.3	0.00	decrease significantly

2B: mixing and doubling

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Effect of machine on within-cotton variability: discussion

Cotton Testing in Africa CSITC - Project

- The homogenizing machine enables a decrease in variability for the 6 CSITC criteria (UHML and Str) so the mixing effect can be considered as efficient.
- Mixing effect is more important for the procedure involving small samples.
- Additional doubling enables a greater decrease in variability, for both experiments involving small or larger quantities mixed.

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Plan of presentation

- Introduction
- Homogenizing machine description
- Effect of machine on mixed cottons
- **Effect of machine on homogenized cotton**
- Conclusion

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Homogenizing cotton with the machine

- Test in partnership with BBB
  - BCRT2008-4 and BCRT2009-4(H): same cotton
- Objective
  - BCRT2009-4: Homogenize large masses of cotton (50 kg) from one bale

    Procedure: machine+doubling described for Exp.2 (12 times)
  - Observe a difference of variability between material before and after homogenization

    H0: homogenizing machine reduces within-cotton variability

Homogenizing cotton with the machine

- Materials
  - Cotton: Westafrican Guinea Conakry (RM 40)
  - BCRT2009-4: Homogenizing machine
    - » Speed ratios fixed
    - » Distances between pairs of cylinders
    - » Pressure between cylinders
    - » Pressure drop in venturi
  - Internal experiment in one laboratory:
    - SITC testing: HVI 1000 M1000
    - 10 tests (1 Mic, 2 LS, 2 CT)

Effect of machine on within-cotton variability: results and discussion

- Internal procedure to evaluate within-cotton variability

N(raw,2008) = 8
N(H,2009) = 10

F-ratio: raw:homogenized
if > 1 → variability decrease

	Mean		Variance		Ratio	Pr>F	Trend to
Parameter	Raw	H	Raw	H	Var		
Mic	3.34	3.44	0.003	0.000	7.0	0.00	decrease significantly
Str gf/tex	31.51	31.84	0.058	0.058	1.0	0.47	stable
UHML mm	28.93	28.57	0.062	0.011	5.9	0.01	decrease significantly
UI %	82.55	81.63	0.040	0.025	1.7	0.23	decrease
Rd	71.68	72.13	0.048	0.018	2.8	0.08	decrease significantly
+b	12.41	12.72	0.007	0.004	1.8	0.20	decrease

- Variability is reduced after homogenizing procedure → evaluation of the true inter-lab variability (due to laboratory practices, independently from cotton)

This project is co-funded by the European Union and the Common Fund for Commodities

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Interpretation of inter-laboratory variability

- Complementary results (from RT):
  - Over 187 (2008-4) and 141 (2009-4) participating laboratories
  - Inter-lab variance results 2008-4 (Raw) and 2009-4 (H) :

Parameter	N		Mean		Variance		MD significant?	F Ratio	Trend to
	Raw	H	Raw	H	Raw	H			
Mic	74	74	3.40	3.43	0.011	0.007	no	1.6	decrease significantly
Str gf/tex	65	65	31.29	32.21	1.661	3.298	yes	*2.0*	*increase*
UHML mm	63	63	29.01	28.97	0.159	0.164	no	1.0	stable
UI %	59	59	82.57	82.34	0.324	0.457	no	*1.4*	*increase*
Rd	74	74	70.95	71.08	3.249	3.915	no	*1.2*	*increase*
+b	70	70	12.63	12.62	0.364	0.389	no	*1.1*	stable

F-ratios in italic: inverted from raw:H to H:raw in order to get F >1

→ Open to discussion

This project is co-funded by the European Union and the Common Fund for Commodities

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Plan of presentation

- Introduction
- Homogenizing machine description
- Effect of machine on mixed cottons
- Effect of machine on homogenized cotton
- **Conclusion**

This project is co-funded by the European Union and the Common Fund for Commodities

Conclusion

The homogenizing machine ensures:

Very efficient for small quantities → Research samples

– a decrease in within-cotton variability while mean values remain unchanged (gentle process)

Applicable for CSITC RT in Africa

– when associated to an easy doubling process, sampling 4 kg of cotton fibre masses is easy before sending samples to participating labs

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Other possible studies

- Focus on homogenizing:
  - Testing on many types of cotton P1
  - Testing successive ways-in
- Other applications than RT
  - Opening+sampling in one laboratory ?
  - Sticky cotton ?

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Note

- Possibility to see the machine at Faserinstitut Bremen
  - + 1 machine at RTC West (CERFITEX, Ségou, Mali)
  - + 1 machine at RTC East (TBS, Dar Es Salaam, Tanzania)
  - + 1 prototype at CIRAD, France
- Acknowledgements:
  - CFC/ICAC/33 project
  - A. Drieling, FIBRE

This project is co-funded by the European Union and the Common Fund for Commodities

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Thank you for your attention

Annexe 3 : Introduction du groupe collage ICCTM-ITMF

International Textile Manufacturers Federation (ITMF)

International Cotton Committee on Testing Methods (ICCTM)

Stickiness WG

Introduction

GOURLOT Jean-Paul

Bremen, March 2010

CIRAD UPR102
Laboratoire de Technologie et de Caractérisation des fibres naturelles

Agenda of the ITMF meeting Stickiness WG/TF

Gourlot J.-P., CIRAD
Introduction, bibliography and latest information

Gozé E., CIRAD
Measurements based on counts : variability and methods of analysis

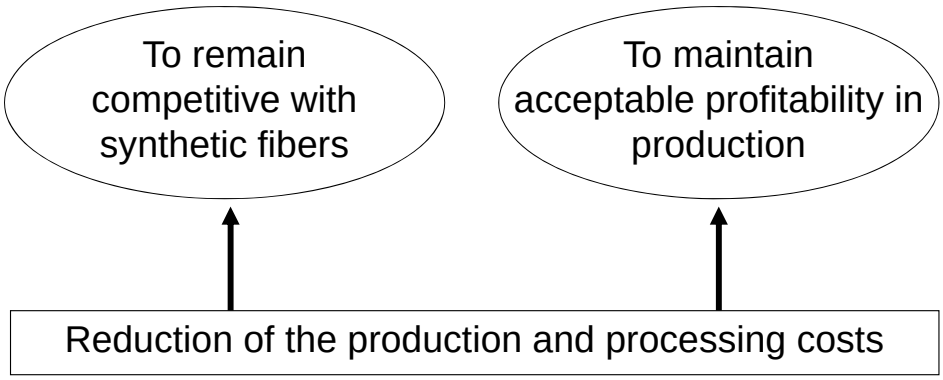
Harzallah O., ENSISA LPMT
Adhesion Energy study of some Physiological and Entomological sugars

Plan of presentation

- ✓Introduction
- ✓Stickiness: origins
- ✓Stickiness: measurement

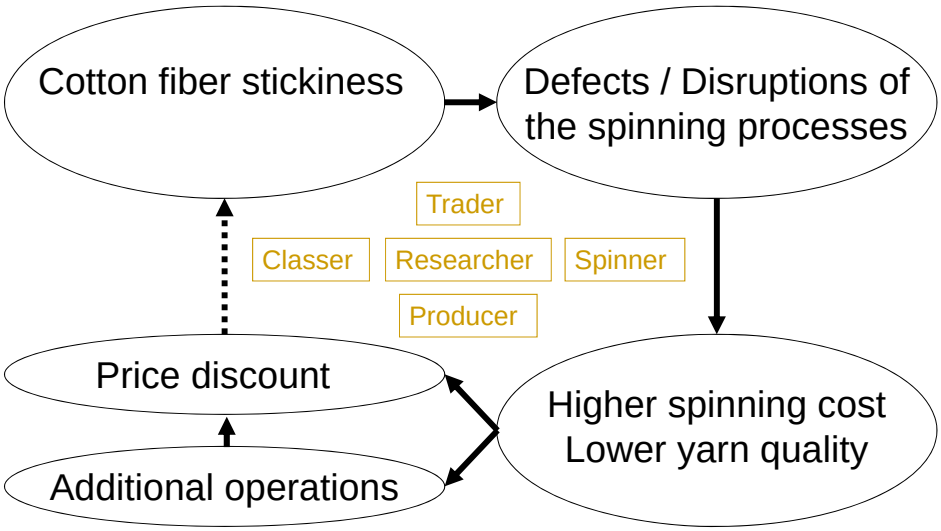
Introduction

The challenge for cotton today



Introduction

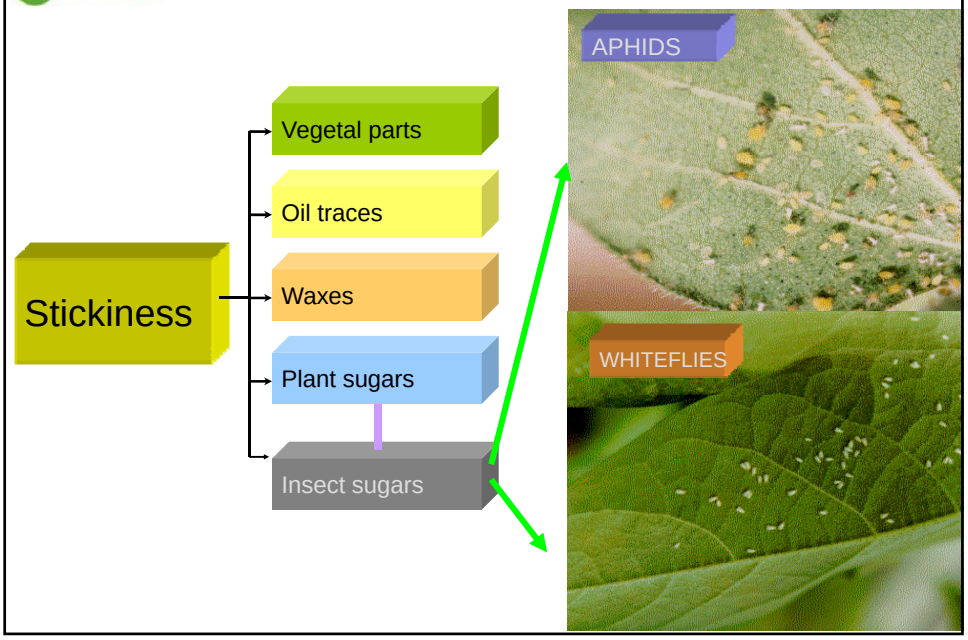
The challenge for cotton today



Plan of presentation

- ✓Introduction
- ✓Stickiness: origins
- ✓Stickiness: measurement

Origins of stickiness



Origins of stickiness

Mature boll covered with honeydew

Origins of stickiness

Mature boll covered with honeydew

Origins of stickiness

Main sugars (in %) determined by HPLC in aphid, whitefly and aleurod honeydew, harvested on *G. hirsutum*

Insect	Mono-saccharides	Polysaccharides		
		Sucrose	Trehalulose	Melezitose
Aphis gossypii	25	12	1	38
Bemisia tabaci	19	16	44	17
Trialeurodes abutilonea	44	33	3	0

Origins of stickiness

- The most important cause of stickiness is due to these entomological sugars.
- Honeydew has now become one of the main contaminants present in cotton.
- Sticky points remain in the cotton from the field up to the spinning processes where they cause production and quality losses.
- The behavior of contaminated fibres during processing is highly dependent upon the quantity and the type of the main sugars present in fibres

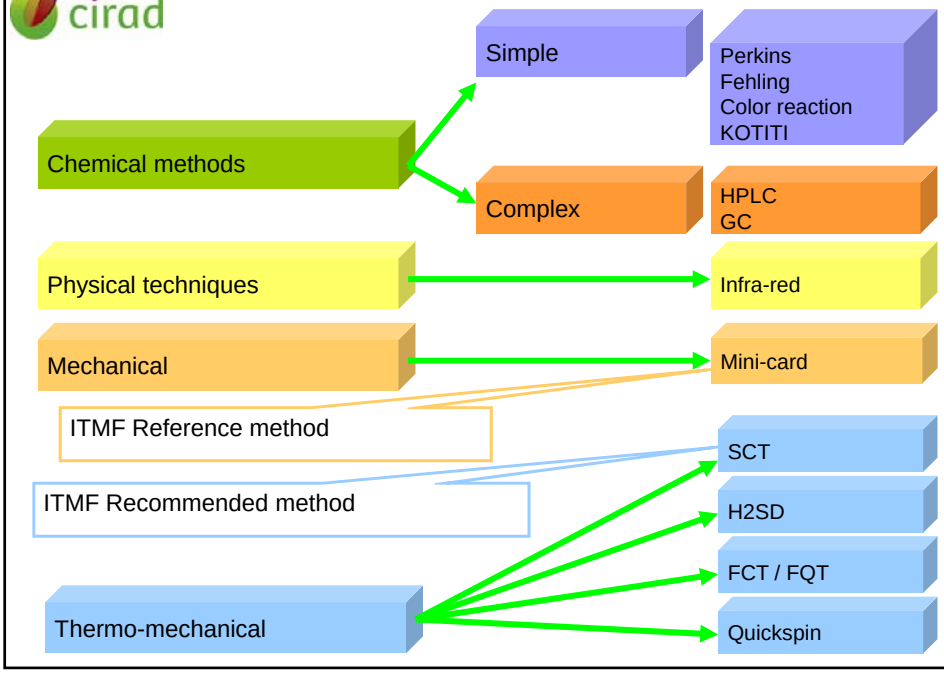
Plan of presentation

✓Introduction

✓Stickiness: origins

✓Stickiness: measurement

Stickiness measurement



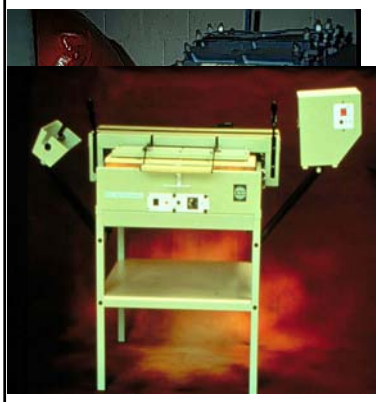
Stickiness measurement

Some measuring devices for stickiness evaluation

Credit: M. Watson

Stickiness measurement

Some measuring devices for stickiness evaluation



Credit: M. Watson

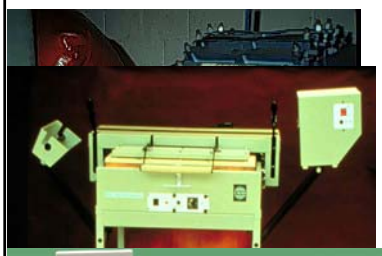
Stickiness measurement

Some measuring devices for stickiness evaluation

Credit: M. Watson

Stickiness measurement

Some measuring devices for stickiness evaluation



Credit: M. Watson

Stickiness measurement

Some measuring devices for stickiness evaluation

Credit: M. Watson

Stickiness measurement

Some measuring devices for stickiness evaluation

Credit: M. Watson

Stickiness measurement

Some measuring devices for stickiness evaluation

Credit: M. Watson

Bibliography on stickiness Causes, measurements and consequences

GOURLOT J.-P.
ICCTM-ITMF, Stickiness WG

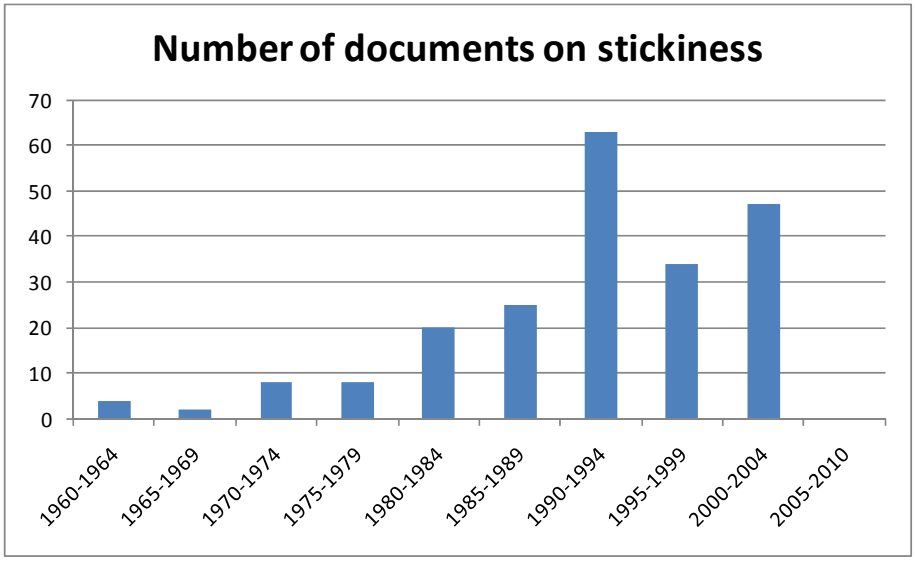
Bremen, March 2010

CIRAD UPR102
Laboratoire de Technologie et de Caractérisation
des fibres naturelles

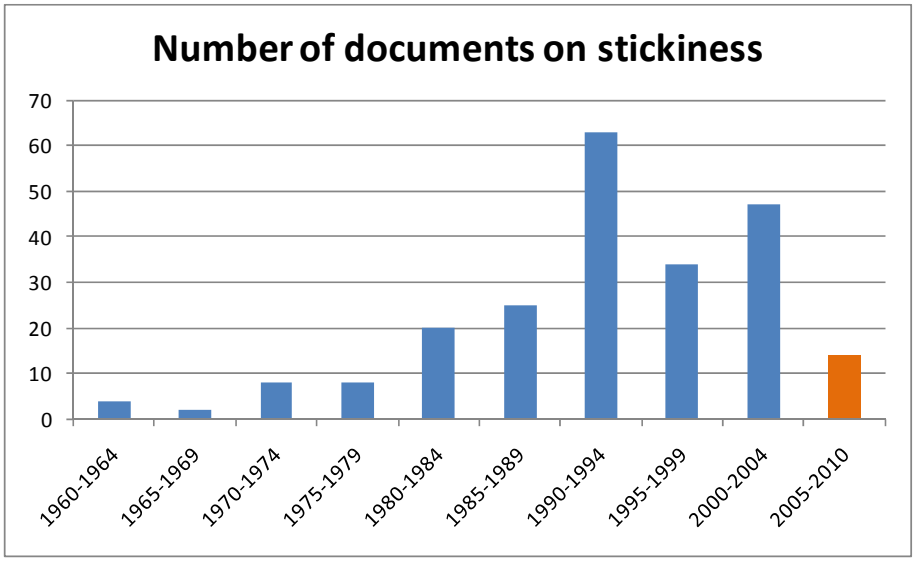
Introduction of the bibliography

- In order to allow everyone to learn more about this contamination, we decided to prepare this extract of the available literature. We retained around 214 references out of thousands of available references, focusing on the cause of stickiness, on the possible means of evaluation and/or measurement and on major consequences during fibre processing.
- The initial bibliography covers a period going from the 1960's to 2008.

Observation



Observation



PDF file

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des fibres naturelles

Thanks for attention … and suggestions

CIRAD UPR102
Laboratoire de Technologie et de Caractérisation
des fibres naturelles

International Textile Manufacturers Federation (ITMF)

International Cotton Committee on Testing Methods (ICCTM)

Stickiness WG

Latest information

GOURLOT Jean-Paul

Bremen, March 2010

CIRAD UPR102
Laboratoire de Technologie et de Caractérisation des fibres naturelles

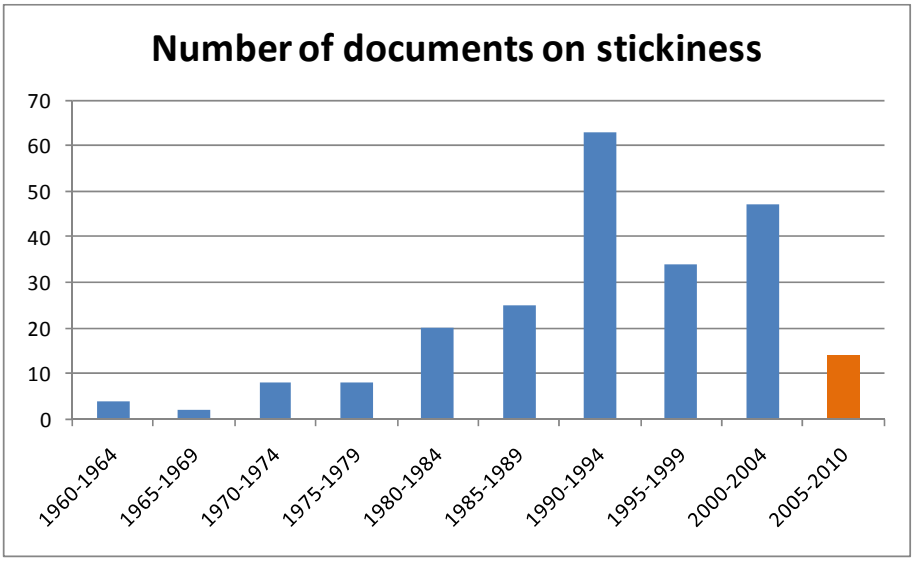
Latest information
ITMF - ICCTM 2010

- ✓SYDEL SA, Montpellier, France manufactures SCT and H2SD
- ✓Lintronics: no news since 2008 and before
- ✓KOTITI: prepared an ISO standards that currently comes to the National Standardization Bodies (AFNOR, DIN, …)
- ✓No (public) patent this year

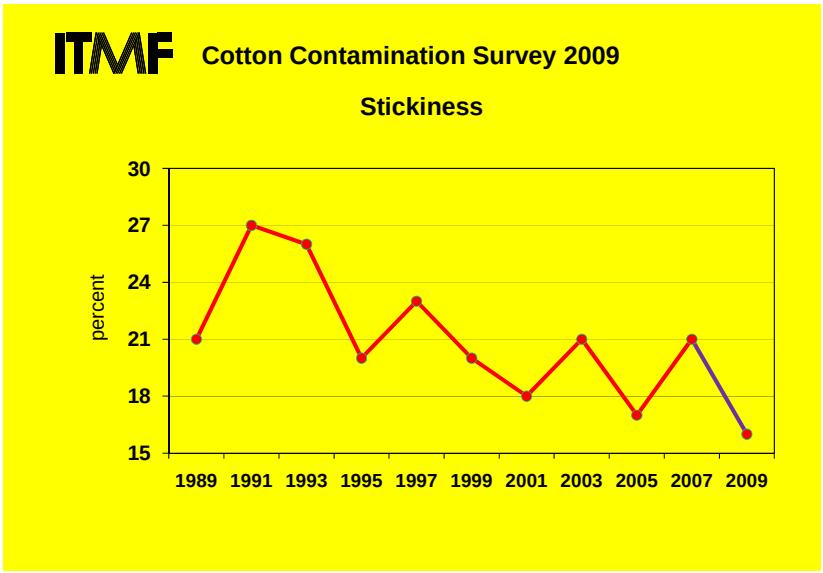
Latest information
ITMF - ICCTM 2010

- **SYDEL : Axes de développement de la nouvelle version (H2SDv2)**
  - **Coût Machine**
  - **Technologies Actuelles**
  - **Réduction du consommable**
  - **Des bases solides pour les développements futurs**
    - Différentiation du type de collage Mouche Blanche / Puceron (US patents)
    - Evaluation du taux de collage par spectrométrie.
  - **Un partenariat reconduit avec le CIRAD pour vérifier le niveau de lecture et sa précision**

Observation



Latest information
ITMF - ICCTM 2010



Thanks to M. Christian Schindler, ITMF

Thank you

for

your attention

CIRAD UPR102
Laboratoire de Technologie et de Caractérisation
des fibres naturelles

Bibliography on stickiness Causes, measurements and consequences
ICCTM-ITMF Stickiness Working Group Bremen, March 2010

Dr. GOURLOT J.-P.
CIRAD, France

Introduction

Over the past few years, it has been noted that cottons from various origins induce a stickiness phenomenon during spinning and thus lead to considerable production losses. The problem is very complex because the stickiness of cottons from different geographical origins may be due to a set of factors, whose effects are detailed in the specialized literature:

- various contaminants such as crush kernel, insecticide, oil, wax, *etc.*…
- physiological sugars,
- entomogical sugars.

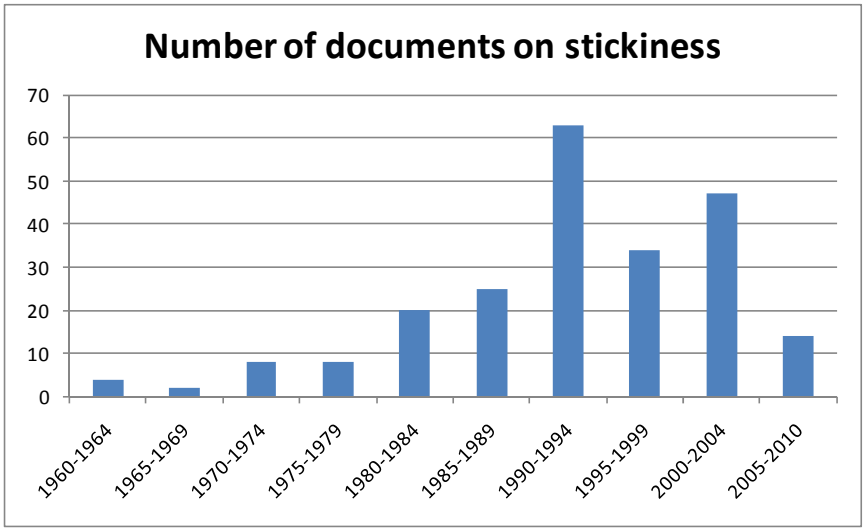
Stickiness is primarily due to insect excretions, known as honeydew, and mainly produced by aphids, *Aphis gossypii (*Glover), and whiteflies, *Bemisia tabaci* (Gennadius). These are composed of sugars, which give the cotton its sticky potential.

When no control system is in place to determine its stickiness level, a production may be labeled in its entirety as "sticky cotton" and, as a consequence, is subjected to systematic downgrading. However, preliminary studies have shown that even in countries that suffer particularly from stickiness, a significant proportion of the harvest is not contaminated. It is therefore essential that the stickiness of the cotton produced is monitored and evaluated.

In order to allow everyone to learn more about this contamination, we decided to prepare this extract of the available literature. We retained around 214 references out of thousands of available references, focusing on the cause of stickiness, on the possible means of evaluation and/or measurement and on major consequences during fibre processing.

The initial bibliography covers a period going from the 1960's to 2008.

At the end of this initial bibliography, we added the new references found between 2008 (last ITMF ICCTM conference) to March 2010 (the actual ITMF ICCTM conference). The low number of new citations itself tells a lot about research effort on this topic … and maybe on the importance of this contamination in the real life.



If some references are missing in this list, please provide them to Jean-Paul GOURLOT through the ITMF secretariat.

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Annexe 4 : Programme de la 13° réunion du CSITC

INTERNATIONAL COTTON ADVISORY COMMITTEE

1629 K Street NW, Suite 702, Washington DC 20006 USA

Telephone +1-202-463-6660 • Fax +1-202-463-6950 • email secretariat@icac.org

13th Meeting of the Task Force on CSITC
March 24, 2010
15:30-18:00
Bremen

Proposed agenda for CSITC 13

1. Review RT2009 Results
2. CSITC Round Test: inches vs mm
    a. Proposal by the Secretariat to standardize RT reporting using mm. (Labs may still use whatever units they wish when providing data to customers.)
    b. Discussion
3. Results from Round Trial 2009-4 for SFI and Maturity
    a. Report by Axel Drieling
4. Production of Calibration Cottons
    a. Report from CIRCOT (if Dr. Sreenivasan is able to attend)
    b. Report from USDA by Jimmy Knowlton
    c. Discussion
5. Using one CSITC round trial sample set per 3 or 4 instruments
    a. Report by Jimmy Knowlton on an experiment, and other considerations
6. Discount on RT participation fee for regional testing centers
    a. Proposal from SIFAT based on volume purchases
7. Update on progress toward a Round Trial Database system with online data submission and distribution of results via a CSITC website
    a. Axel
8. Report on the CFC-EC CSITC project
    a. Axel and Jean-Paul
9. Generic Best Practices Manual (recommendation from the CSITC meeting in Cape Town)
10. Next Meeting: Tuesday, September 21, 2010, Lubbock Texas
11. Other business

Sincerely,

Terry P. Townsend

Executive Director

Annexe 5 : Programme de la Conférence Internationale de Brême

10:50 **Brian Condon**
USDA, ARS, SRRC, New Orleans, USA
"Cotton-based Nonwovens"
„Baumwollbasierte Vliesstoffe"

11:10 **Mark Messura**
Cotton Incorporated, Cary, NC, USA
"Directions for Cotton: Market Challenges and Product Opportunities"
„Baumwolle: Herausforderungen des Marktes und Produktmöglichkeiten"

11:30 **Malgorzata Matusiak**
Textile Research Institute, Lodz, Poland
"Cotton in Technical Applications"
„Baumwolle in technischen Anwendungen"

11:50 **Thomas Schneider**
Hochschule für Technik und Wirtschaft (HTW), Berlin, Germany
"Utilization of the Specific Cotton Properties for New Products"
„Nutzung baumwollspezifischer Eigenschaften für neue textile Produkte"

12:10 – 14:00 Break

14:00 **Session VI: Cotton Testing and Harmonisation**

Chairman:
Jean-Paul Gourlot, CIRAD, Montpellier, France

14:00 **ITMF International Committee on Cotton Testing Methods**

M. N. Vijayshankar	Chairman
Mona Qaud	Task Force on HVI
Axel Drieling	Task Force on Length
Jean-Paul Gourlot	Task Force on Stickiness
Jonn Foulk	Task Force on Neps and Trash
Jonn Foulk	Task Force on Fineness and Maturity
Malgorzata Matusiak	Task Force on Colour

14:30 **Derek Whitelock**
USDA, AMS, Mesilla Park, NM, USA
"Categorization of Extraneous Matter in Cotton Using Machine Vison Systems"
„Kategorisierung von Fremdpartikeln mit Bildanalyse"

14:45 **James Rodgers**
USDA, ARS, SRRC, New Orleans, LA, USA
"Cotton Fiber Moisture Measurement - From the Bale to the Laboratory"
„Messungen der Baumwollfeuchtigkeit vom Ballen bis zum Labor"

15:00 **Guntram Kugler, *Dean Ethridge**
Textechno, Mönchengladbach, Germany
* Texas Tech University, Lubbock, Texas, USA
"New Fiber Length and Strength Tester for Cotton Spinning Mills"
„Neues Gerät zur Längen- und Festigkeitsprüfung in Baumwollspinnereien"

15:15 **James Knowlton**
USDA, AMS, Cotton Division, Memphis, TN, USA
"Developments in Short Fiber Measurements"
„Entwicklungen bei der Kurzfasergehaltsbestimmung"

15:30 **Hossein Ghorashi**
Uster Technologies, Knoxville, TN, USA
"Developments in Fiber Quality Measurements and On-line Applications"
„Aktuelle Entwicklungen zu Faserprüfungen und Online-Anwendungen"

15:45 **Varadarajan Srinivasan**
Premier Evolvics Pvt. Ltd, Coimbatore, India
"Maturity and Trash - New Parameters in Premier ART 2"
„Schmutz und Reifegrad - neue Kennwerte mit Premier ART 2"

16:00-16:20 Break

16:20 **Session VII: Cotton Processing**

Chairman:
Stefan Schlichter, Oerlikon Neumag Austria GmbH, Linz, Austria

16:20 **Sabrina Zobel**
Institut für Textiltechnik, Aachen, Germany
"New Developments in Blowroom and Carding Technology"
„Neue Entwicklungen in der Spinnereivorbereitung"

16:40 **Christoph Färber, Armin Leder**
Trützschler GmbH & Co. KG, Mönchengladbach, Germany
"A Modular Solution to Combat the Foreign Matter Problem in Ginning and Spinning"
„Eine modulare Lösung zur Bekämpfung der Fremdstoffproblematik in Gin und Spinnerei"

16:55 **Uwe Heitmann**
Institut für Textil- und Verfahrentechnik, Denkendorf, Germany
"Airjet Spinning - Technological Interrelations"
„Technologische Zusammenhänge beim Luftspinnen"

17:15 **Peter G. Gölden**
Oerlikon Schlafhorst, Mönchengladbach, Germany
"Autoconer 5: The Significance of Gentle Yarn Handling in Hight Speed Processing"
„Autoconer 5: Die Garnqualität im Hochleistungs-Spulprozess"

17:30 **Iris Biermann, Joachim Herzig**
Oerlikon Textiles Components, Wattwil, Switzerland
"Textparts® Conversion PLUS - The Customized Modernisation Kit"
„Textparts® Conversion PLUS - kundenspezifischer Modernisierungssatz"

17:45 **Albert Rusch**
Maschinenfabrik Rieter AG, Winterthur, Switzerland
"Optimal Use of Recources with Compact Ring Spinning"
„Optimaler Ressourceneinsatz beim Kompaktspinnen"

Final Remarks / Schlusswort

18:00 – 19:00 Reception - Senate of Bremen
Rathaus Bremen / Town Hall Bremen
Obere Rathaushalle

Saturday, March 27, 2010

9:00 – 13:00

"Open Day"

at the Fibre Institute Bremen / Bremer Baumwollbörse.
Visit of the Laboratory/Arbitration Room

im Faserinstitut Bremen / Bremer Baumwollbörse.
Besuch des Laboratoriums/Arbitrageraum

Organiser Scientific Conference:
Faserinstitut Bremen e.V.

Should you have any queries relating the Conference please contact

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Gourlot

Admission Card

- Final Programme -

30th International Cotton Conference Breme

March 24 - 27, 2010

Bremen Town Hall

Conference Desk:

March 24: 15.00 - 18.00
March 25: 08.00 - 18.00
March 26: 08.00 - 18.00

Wednesday, March 24, 2010

15:00 – 18:00 Registration — **Rathaus Bremen / Town Hall Bremen**

Thursday, March 25, 2010

8:00 Registration — **Rathaus Bremen / Town Hall Bremen**

9:00 Welcome Addresses

Ralf Nagel
Senator of Economy and Ports,
Senator of Justice and Constitution, Bremen

Wolfgang Vogt-Jordan
President Bremer Baumwollbörse

Axel S. Herrmann
Director Faserinstitut Bremen e.V.

10:00 Session I: Cotton Trade and Textiles

Chairman:
Ina Grohmann, Federal Ministry of Economics and Technology, Berlin, Germany

10:00 **Wolfgang Grupp**
TRIGEMA GmbH & Co. KG, Burladingen, Germany
"Germany - Still a Country with a Future for Textiles?"
„Deutschland - noch ein Standort mit Zukunft?"

10:20 **Karin Ekberg, Philipp Meister**
adidas AG, Herzogenaurach, Germany
"Environmental Sustainability at adidas - a holistic concept"
„Nachhaltigkeit bei adidas - ein ganzheitlicher Ansatz"

10:40 **Allen Terhaar**
Cotton Council International, Washington, DC, USA
"Cotton Demand - Weighing the Consumer Factor"
„Baumwollnachfrage - Einschätzung des Konsumverhaltens"

11:00 **Keshav Raj Kranthi**
Central Institute for Cotton Research,
Nagpur, India
"New Perspectives for Cotton Production Research"
„Forschung in der Baumwollproduktion - Ein Ausblick"

ICAC - Cotton Researcher of the Year

11:25 **Terry Townsend**
International Cotton Advisority Committee (ICAC), Washington, DC, USA
"Commodity Prices, the ICE Cotton Contract and the Global Economy: Implications for Concentration in the World Cotton Industry and Long Run Trends in Cotton Supply and Use"
„Einflüsse und langfristige Trends in Baumwoll-produktion und -verarbeitung"

11:45 **Jordan Lea**
Eastern Trading Company, Greenville, SC, USA
"Risk Management in the ICE Age"
„Risikomanagement im Baumwollhandel"

12:05 **Matthias Knappe**
International Trade Centre, Geneva, Switzerland
"Understanding Cotton Demand and Promoting Origin - The Example of African Cotton"
„Nachfragekriterien für Baumwolle - Produzenten-verständnis als erster Schritt der Handelsförderung - Das Beispiel afrikanischer Baumwolle"

12:25 **Andrew Salm**
Organic Exchange, Kilkenny, Ireland
"Sustainable Cotton Options - Integrating Sustainability into the Sourcing Strategies of Brands and Retailers"
„Integration der Nachhaltigkeit in die textile Beschaffungsstrategie"

12:45 – 14:00 Break

14:00 Session II: Developments in Cotton Production (Regional Developments)

Chairman:
Rafiq Chaudhry, Int. Cotton Advisory Committee, Washington DC, USA

14:00 **Christina Maria Kleineidam**
Author and Journalist, Borgo Pace, Italy
"Cotton Worldwide"
„Baumwolle weltweit"

14:20 **Kater Hake**
Cotton Incorporated, Cary, NC, USA
"Development of Biotechnology in Cotton"
„Entwicklung der Biotechnologie für Baumwolle"

14.40 **Diren N. Sheth**
Cotton Association of India, Mumbai, India
"Regional Developments of Cotton Production in India"
„Regionale Entwicklungen in der Baumwollproduktion - Indien "

14:55 **Bill M. Norman**
National Cotton Council of America, Cordova, TN, USA
"Regional Developments of Cotton Production in the USA"
„Regionale Entwicklungen in der Baumwollproduktion - USA"

15:10 **Andrew Macdonald**
Amcon Consulting, Sao Paulo, Brazil
"Regional Developments of Cotton Production in South America"
„Regionale Entwicklungen in der Baumwollproduktion - Südamerika"

15:25 **Abdin Mohamed Ali**
The Sudan Cotton Company Ltd, Khartoum, Sudan
"Regional Developments of Cotton Production in Africa"
„Regionale Entwicklungen in der Baumwollproduktion - Afrika"

15:40 **Requested**
"Regional Developments of Cotton Production in China"
„Regionale Entwicklungen in der Baumwollproduktion - China"

15:55 Discussion

16:10 – 16:30 Break

16:30 - 18:00 Session III: Panel Discussion
The Impact of Instrument Testing on Cotton Trading

Chairman:
William E. May, ACSA, Memphis, TN, USA

Participants:

Andrew Macdonald
Amcon Consulting, Chairman CSITC Task Force, Sao Paulo, Brazil

Don Cameron
Terranova Ranch, Inc., Helm, CA, USA

M. N. Vijayshankar
Recron, Malaysia

John D. Mitchell
Cargill Cotton, Cordova, USA

Romano Bonadei
Fondazione Ind. Cotone-Lino, Milano, Italy

20:00 "Bremer Abend"
Ratskeller, Bremen

Friday, March 26, 2010

8:30 Session IV: Developments in Cotton Produ (Agrotechnical Aspects)

Chair:
Elke Hortmeyer
Bremer Baumwollbörse, Bremen, Germany

8:30 **Christian Schindler**
ITMF, Zürich, Switzerland
"The ITMF Cotton Contamination Survey 2009
„ITMF-Übersicht zur Baumwollverunreinigung

8:45 **Michel Tahar**
Bayer CropScience, Lyon, France
"What Can We Expect from Biotechnology in t next Decade for Cotton Production?"
„Was können wir für Baumwolle von der Biotechnologie in der nächsten Dekade erwar

9:05 **Matin Qaim**
University of Göttingen, Germany
"Socioeconomic Impact of Genetically Modifie in Developing Countries"
„Sozioökonomische Effekte von gentechnisch veränderter Baumwolle in Entwicklungsländer

9:25 **Pablo Tittonell**
CIRAD, Montpellier, France
"Sustaining Soil Productivity of Cotton-Based Systems in the Savannahs of West- and Centr Africa: Challenges and Opportunities"
„Die Erhaltung der Bodenfruchtbarkeit im Bau bau in den Savannen West- und Zentralafrikas

9:45 **Derek Whitelock**
USDA, ARS, Mesilla Park, NM, USA
"The Influence of Modern High Speed Roller- Saw-ginning Systems on Throughput and Cott Quality"
„Der Einfluss moderner Gin-Anlagen auf den Durchsatz und die Baumwollqualität"

10:05-10:30 Break

10:30 Session V: Cotton Products

Chairman:
Anton Schenek, Hochschule Reutlingen, Reutlingen, Germany

10:30 **Leo Berginz**
Hermann Bühler AG,Sennhof/Winterthur, Swit
"A Spinner's View on Organic Cotton"
„Erfahrungen mit Organic Cotton aus Spinner